

WHAT IS CLAIMED IS:

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1. A semiconductor structure comprising:  
a semiconductor substrate; and  
a compliant interconnect element disposed on a first surface of the substrate, said compliant interconnect element defining a chamber between the first surface of the substrate and a surface of the interconnect element.

2. The structure of claim 1, wherein the interconnect element comprises a compliant layer.

3. The structure of claim 2, wherein the compliant layer comprises a polymer.

4. The structure of claim 3, wherein the polymer comprises silicone.

5. The structure of claim 2, wherein the chamber is surrounded on all of its sides by the compliant layer and the first surface of the chip.

6. The structure of claim 1, wherein the chamber has a height within the range of about 50  $\mu\text{m}$  to about 200  $\mu\text{m}$ .

7. The structure of claim 2, wherein the compliant layer has a thickness within the range of about 5  $\mu\text{m}$  to about 500  $\mu\text{m}$ .

8. The structure of claim 1, wherein the substrate comprises a device.

9. The structure of claim 8, wherein the device comprises an integrated circuit.

10. The structure of claim 9, wherein the device comprises a micro-electro mechanical system.

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11. The structure of claim 1, further comprising:  
an encapsulation layer disposed on a second surface of the semiconductor substrate.
12. The structure of claim 1, further comprising:  
a first conducting pad on the substrate; and  
a conducting layer, disposed on the compliant interconnect element in contact with  
the first conducting pad.
13. The structure of claim 12, wherein the conducting layer comprises metal.
14. The structure of claim 13, wherein the metal is selected from the group consisting of  
titanium, copper, nickel, and gold.
15. The structure of claim 13, wherein the conducting layer has a thickness within the  
range of about 2  $\mu\text{m}$  to about 5  $\mu\text{m}$ .
16. The structure of claim 12, further comprising:  
a plurality of conducting pads on the substrate,  
wherein the conductive layer comprises a plurality of lines, each of the lines contacting one  
of the plurality of conducting pads, the lines defining a pad redistribution pattern.
17. The structure of claim 12, further comprising:  
a printed circuit board having a second conducting pad disposed thereon,  
wherein the second conducting pad is in electrical communication with the first  
conducting pad on the substrate via the conducting layer.
18. A method for forming a semiconductor structure, said method comprising:  
providing a semiconductor substrate; and  
providing a compliant interconnect element on a first surface of the substrate, said  
compliant interconnect element defining a chamber between the compliant interconnect  
element and the first surface of the substrate.
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FOOTNOTES

19. The method of claim 18, wherein providing the compliant interconnect element comprises providing a compliant layer.
20. The method of claim 19, wherein providing the compliant layer comprises providing a transfer substrate having a compliant layer disposed thereon.
21. The method of claim 20, wherein providing a transfer substrate comprises providing a glass substrate.
22. The method of claim 18, wherein providing a semiconductor substrate comprises a providing a plurality of singulated dies, each of said die including a semiconductor device.
23. The method of claim 22, further comprising:  
encapsulating each one of the plurality of singulated dies in a protective material to form a reconstituted wafer.

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